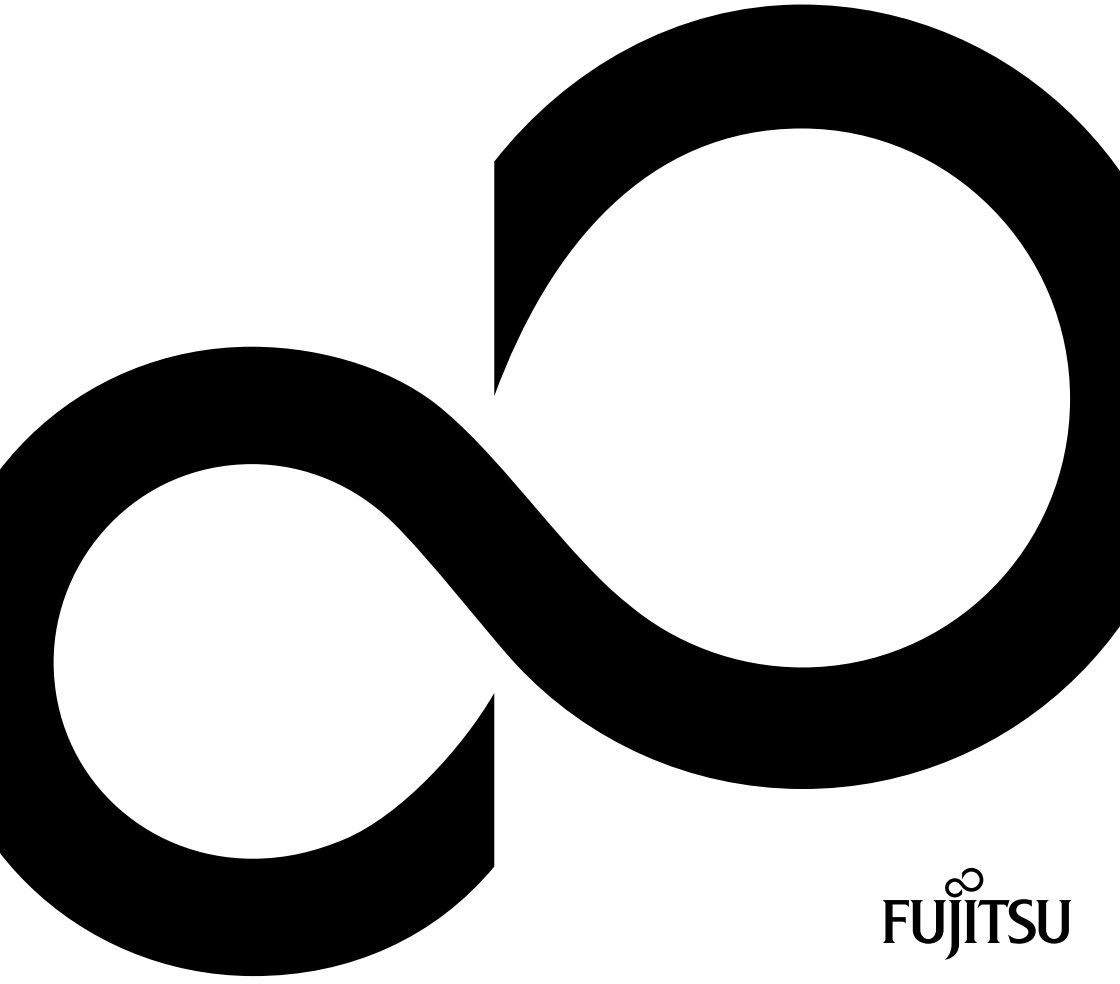
ESPRIMO P5635 / P5730
ESPRIMO P5731 / P7935
ESPRIMO P7936 / P9900



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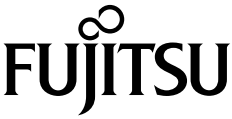

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ESPRIMO P5635 / P5730
ESPRIMO P5731 / P7935
ESPRIMO P7936 / P9900

Operating Manual

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Your ESPRIMO

... is available with various configuration levels with different hardware and software. You can incorporate accessible drives (for example a DVD drive) as well as other boards.

This manual tells you how to start using your device and how to operate it in daily use. This manual applies for all configuration levels. Depending on the chosen configuration level, some of the hardware components described may not be available on your PC. Please also read the notes about your operating system.

Depending on the configuration selected, the operating system is preinstalled on your hard disk (e.g. Windows 7).

Further information on this device is provided:

- in the poster "Getting Started"
- in the "Safety" manual
- in the "Warranty" manual
- in the operating manual for the monitor
- in the manual for the mainboard
- in your operating system documentation
- in the information files (e.g. *.PDF, *.HTML, *.DOC, *.CHM, *.TXT, *.HLP)

Some of the manuals listed can be found in electronic form on the "Drivers & Utilities" DVD.

You can access and view the required information using the *Acrobat Reader* program, which is also included on the DVD. You can of course also print out a copy of the manual if you prefer.

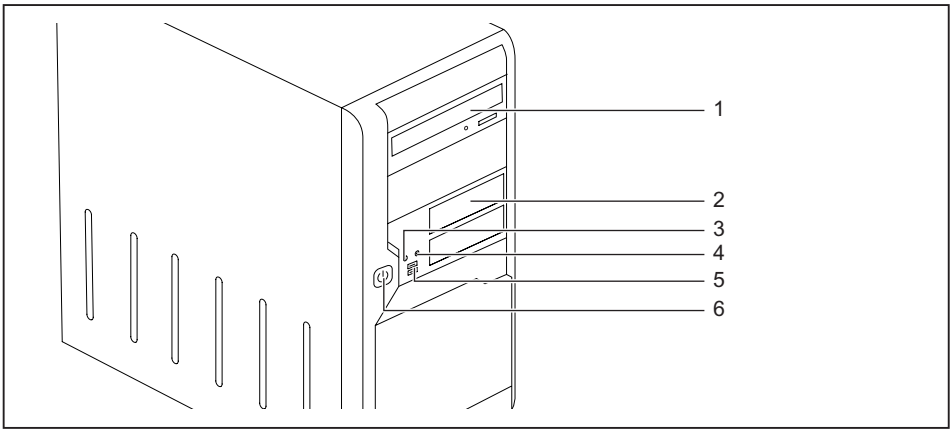
Notational conventions

	Pay particular attention to text marked with this symbol. Failure to observe these warnings could pose a risk to health, damage the device or lead to loss of data. The warranty will be invalidated if the device becomes defective through failure to observe these warnings.
	Indicates important information for the proper use of the device.
►	Indicates an activity that must be performed
↳	Indicates a result
`This font`	indicates data entered using the keyboard in a program dialogue or at the command line, e.g. your password (**`Name123`**) or a command used to start a program (**`start.exe`**)
`This font`	indicates information that is displayed on the screen by a program, e.g.: `Installation is complete.`
This font	indicates • terms and texts used in a software interface, e.g.: Click on *Save* • names of programs or files, e.g. *Windows* or *setup.exe*.
"This font"	indicates • cross-references to another section, e.g. "Safety information" • cross-references to an external source, e.g. a web address: For more information, go to "http://ts.fujitsu.com" • Names of CDs, DVDs and titles or designations of other materials, e.g.: "CD/DVD Drivers & Utilities" or "Safety" Manual
Key	indicates a key on the keyboard, e.g: F10
This font	indicates terms and texts that are emphasised or highlighted, e.g.: **Do not switch off the device**

Ports and operating elements

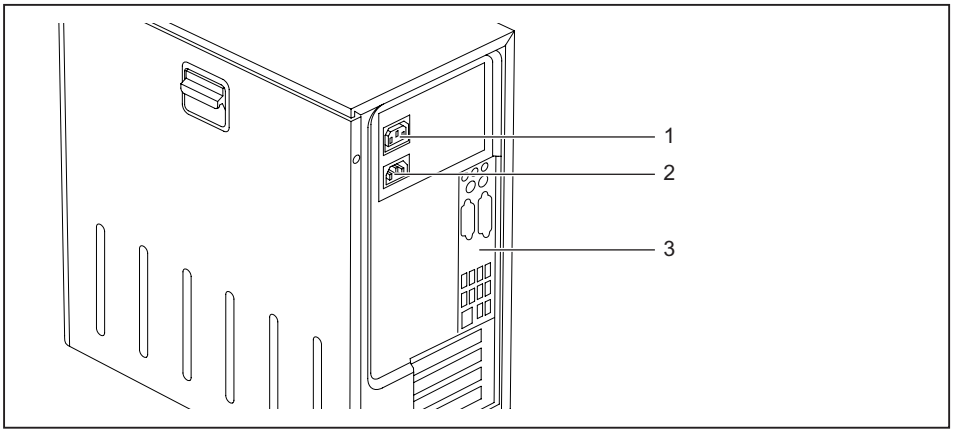
This chapter presents the individual hardware components of your device. This will provide you with an overview of the ports and operating elements on the device. Please familiarise yourself with these components before starting to work with your device.

Front



1 = Optical drive
2 = Module bay
3 = Headphone port
4 = Microphone jack
5 = USB ports
6 = ON/OFF switch

Rear



1 = Power connector for computer

2 = Power connector for monitor (device-dependent)

3 = Ports for external devices

Important notes

In this chapter you will find information regarding safety which it is essential to take note of when working with your device.

Safety information

Pay attention to the information provided in the "Safety" manual and in the following safety notes.

When installing and operating the device, please observe the notes on environmental conditions in Chapter "Technical data", Page 62 as well as the instructions in Chapter "Getting started", Page 12.

When setting up the device, make sure there is clearance all around it so that the casing receives enough ventilation. In order to avoid overheating, do not cover the ventilation areas of the monitor or the device.

You must only operate the device if the rated voltage used by the device is set to the local mains voltage.

The main switch (if present) and the ON/OFF switch do not disconnect the device from the mains voltage. To completely disconnect from the mains voltage, remove the power plug from the power socket.

Replace the lithium battery on the mainboard in accordance with the instructions in "Replacing the lithium battery", Page 61.

Caution, components in the system can get very hot.

The activities described in these instructions must always be performed with the greatest care.

Repairs to the device must only be carried out by qualified technicians. Incorrect repairs could put the user at great risk (electric shock, hazardous energy emissions, risk of fire) or cause serious damage to the equipment.

Transporting the device

Transport all parts separately in their original packaging or in a packaging which protects them from knocks and jolts, to the new site.

Do not unpack them until all transportation manoeuvres are completed.

If the device is brought from a cold environment into the room where it will be used, condensation may occur. Before operating the device, wait until it is absolutely dry and has reached approximately the same temperature as the installation site.

Cleaning the device

Turn off all power and equipment switches and disconnect the power plug from the mains outlet.

Do not clean any interior parts yourself, leave this job to a service technician.

Do not use any cleaning agents that contain abrasives or may corrode plastic (alcohol, thinner or acetone).

Never clean the device with water! Water entering into the device could present a serious risk to users (e.g. electric shock).

Ensure that no liquid enters the system.

The surface can be cleaned with a dry cloth. If particularly dirty, use a cloth that has been moistened in mild domestic detergent and then carefully wrung out.

Use disinfectant wipes to clean the keyboard and the mouse.

Energy saving, disposal and recycling

Further information can be found on the "Drivers & Utilities" DVD.

CE marking

The shipped version of this device complies with the requirements of EEC directives 2004/108/EC "Electromagnetic compatibility" and 2006/95/EC "Low voltage directive".

CE marking for devices with radio component

This equipment complies with the requirements of Directive 1999/5/EC of the European Parliament and Commission from 9 March, 1999 governing Radio and Telecommunications Equipment and mutual recognition of conformity.

This equipment can be used in the following countries:

Belgium	Bulgaria	Denmark	Germany
Estonia	Finland	France	Greece
UK	Ireland	Iceland	Italy
Latvia	Liechtenstein	Lithuania	Luxembourg
Malta	Netherlands	Norway	Austria
Poland	Portugal	Rumania	Sweden
Switzerland	Slovakia	Slovenia	Spain
Czech Republic	Hungary	Cyprus	

Contact the corresponding government office in the respective country for current information on possible operating restrictions. If your country is not included in the list, then please contact the corresponding supervisory authority as to whether the use of this product is permitted in your country.

Getting started

Please observe the safety information in the "Important notes", Page 9 chapter.

Unpacking and checking the delivery

It is recommended not to throw away the original packaging material! It may be required for reshipment at some later date.

- ► Unpack all the individual parts.
- ► Check the contents of the package for any visible damage caused during transport.
- ► Check whether the delivery conforms to the details in the delivery note.
- ► Should you discover that the delivery does not correspond to the delivery note, notify your local sales outlet immediately.

Steps for initial setup

Only a few steps are necessary to put your new device into operation for the first time:

- Select a location for device and set up device
- Connecting external devices
- Check the voltage at the mains outlet and connect the device to an electrical outlet
- Switch the device on

You will learn more about the individual steps in the following sections.

External devices

If you have received other external devices in addition to your own device (e.g. a printer), do not connect these until after the initial installation. The following sections describe how to connect these external devices.

Drives and boards

If you have received drives or boards with your device, please do not install them until after first-time setup. How to install drives and boards is described in the "System expansions", Page 35 chapter.

Setting up the device

When setting up your device, please read the recommendations and safety notes in the "Safety" manual.

We recommend that you place your device on a surface which is not slippery. In view of the many different finishes and varnishes used on furniture, it is possible that the rubber feet will mark the surface they stand on.

Depending on the location of your device, troublesome vibrations and noises may occur. To prevent this, a distance of at least 10 mm should be maintained from other devices on casing sides without ventilation surfaces.

In order to avoid overheating, do not cover the ventilation areas of the monitor or the device.

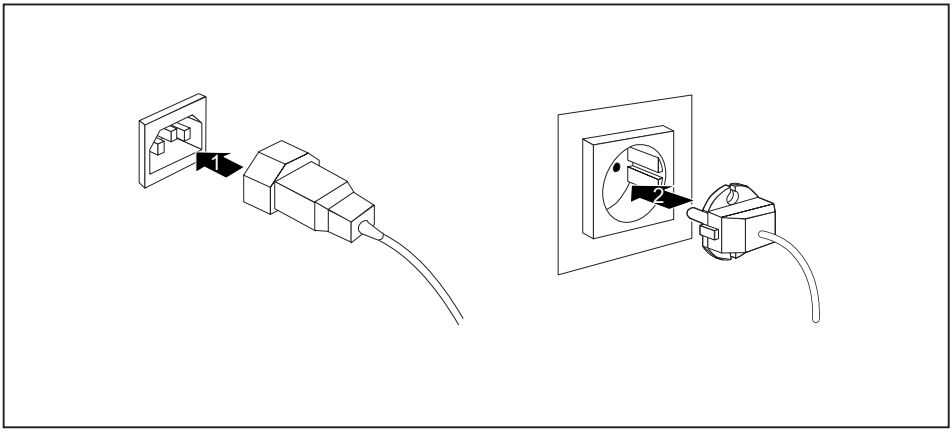
Do not stack several devices on top of each other.

Do not expose the device to extreme ambient conditions (see "Technical data", Page 62, section "Ambient conditions"). Protect the device against dust, humidity and heat.

Operating position

Use the device only in the vertical operating position.

Connecting the machine to the mains



► Connect the mains cable to the machine (1).
► Plug the mains plug into a three-pin socket (2).

Switching on for the first time: installing the software

Once the installation has been started the device must not be switched off, unless the installation has been completed.

During installation, the device may only be rebooted when you are requested to do so!

The installation will otherwise not be carried out correctly and the contents of the hard disk must be completely restored.

If the device is integrated into a network, the user and server details as well as the network protocol are required during the software installation.

Contact your network administrator if you have any questions about these settings.

When you switch on the device for the first time, the supplied software is installed and configured. Plan a reasonable amount of time for this, as this process must not be interrupted.

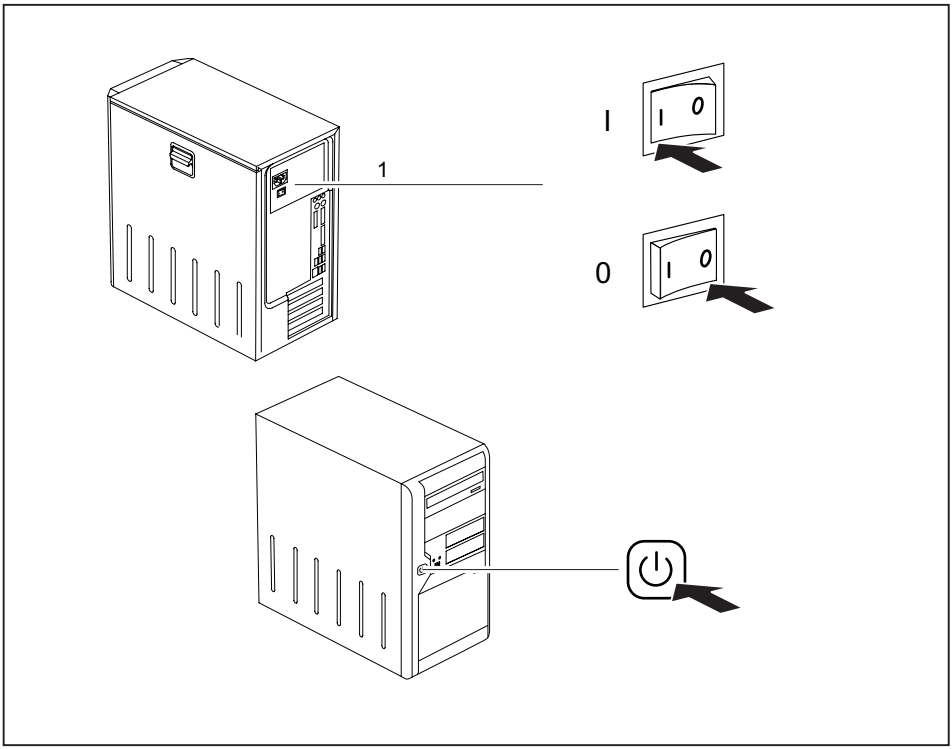
You may need the licence number for Windows during the installation. The licence number is located on a sticker on your device.

Switching on monitor and device

Depending on the version, the device may be equipped with a main power switch on the back of the device in addition to the ON/OFF button on the front. As a result, there are different ways to switch on the two variants.

- ► Switch the monitor on (see the operating manual for the monitor).
- ► Switch the device on. To do this, follow the instructions below.

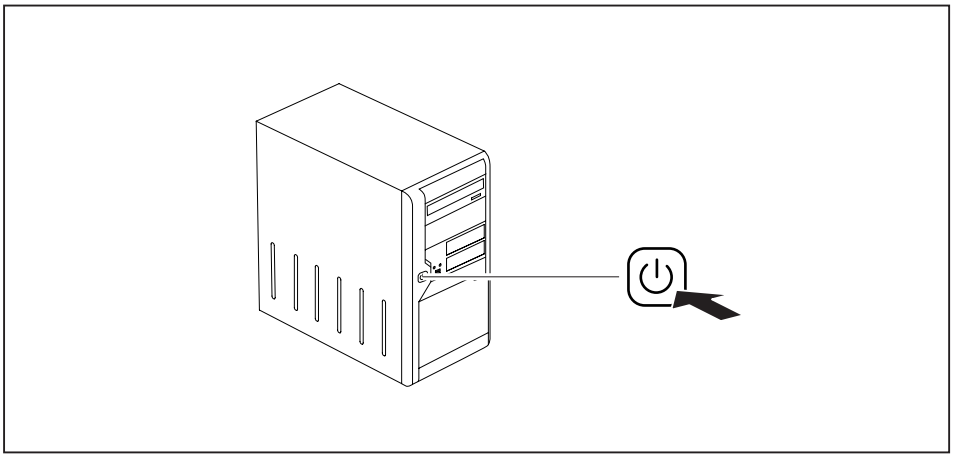
Switching on the device (with main power switch)



0 = Device is off I = Device is on

► Switch the device on with the main power switch (1) on the back of the device.
► Press the ON/OFF switch (2) on the front of the device.
↳ The power-on indicator lights green and the device is started.

Switching on the device (without main power switch)



► Press the ON/OFF switch on the front of the device.

↳ The power-on indicator lights green and the device is started.

Installing the software

► During installation, follow the on-screen instructions.

► If anything is unclear regarding the data you are asked to input, read the online Help in your operating system.

i

You will find more information on the system, as well as drivers, utilities and updates on the "Drivers & Utilities" DVD and on the Internet under "http://ts.fujitsu.com/support/".

Connecting external devices

Read the documentation on the external device before connecting it.

With the exception of USB devices, always remove all power plugs before connecting external devices!

Do not connect or disconnect cables during a thunderstorm.

Always take hold of the actual plug when disconnecting a cable. Never pull the cable!

Connect and disconnect the cables in the order described below.

Cable connecting

- ► Switch off all affected devices.
- ► Remove power plugs from the mains outlets for all devices.
- ► Plug all cables into the device and peripherals. Please make sure that you always observe the safety notes provided in "Important notes", Page 9.
- ► Plug all data communication cables into the sockets provided for the data / telecommunication networks.
- ► Plug all power cables into the grounded mains outlets.

Disconnecting cables

- ► Switch off all affected devices.
- ► Remove power plugs from the mains outlets for all devices.
- ► Unplug all data communication cables from the utility sockets.
- ► Unplug all cables from the device and peripherals.

USB devices are hot-pluggable. This means you can connect and disconnect USB cables while your device is switched on.

Additional information can be found in "Connecting external devices to the USB ports", Page 21 and in the documentation for the USB devices.

Ports on the device

The ports are located on the front and back of the device. Not all ports are necessarily present on your device. The standard ports are marked with the symbols shown below (or similar). Detailed information on the location of the connections is provided in the manual for the mainboard.

Keyboard port, purple

Parallel port/printer (optional)

Serial port 1, turquoise

Serial port 2, turquoise

VGA monitor connection, blue

Microphone jack, pink

Headphones jack, light green

Audio input (Line in), light blue

Audio output (Line out), light green

PS/2 mouse port, green

USB - Universal Serial Bus, black

LAN port

FireWire port

SCSI connection

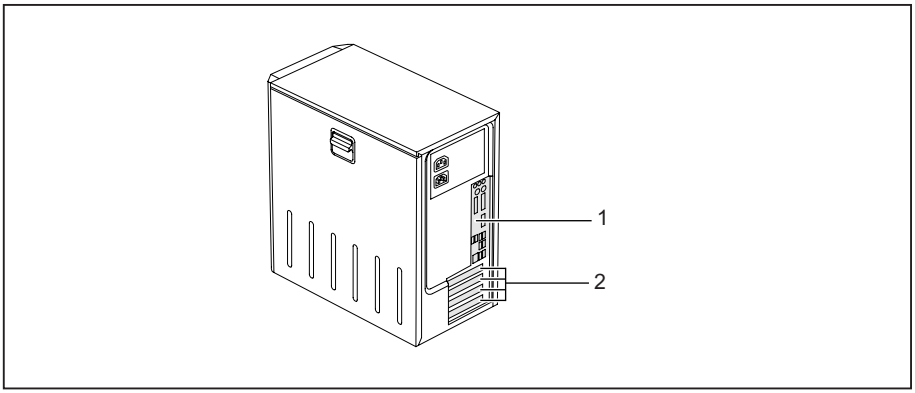
DVI-I monitor port

DisplayPort

Some of the connected devices require special software (e.g. drivers) (refer to the documentation for the connected device and operating system).

Connecting a monitor

Depending on the device variant, the monitor ports on the mainboard (1) may be covered over and inoperable. In this case, only use the external monitor connections on the graphics card in one of the card slots (2).

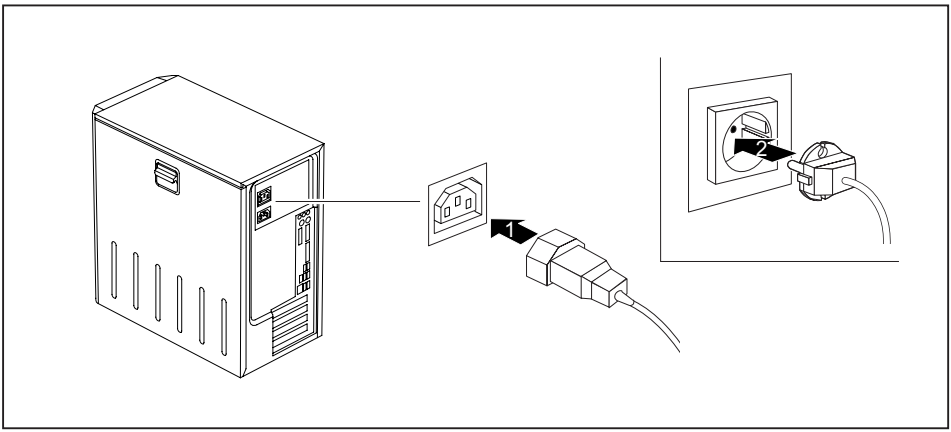


1 = Mainboard monitor ports 2 = Graphics card external monitor ports

► Follow the instructions contained in the monitor manual to prepare the monitor for operation (e.g. connecting cables).

► Plug the data cable into the suitable monitor port for the device (VGA, DVI-I, DisplayPort).

The monitor power cable may only be connected to the monitor socket of the device if the monitor current consumption is less than 1.5 A at 230 V or 3 A at 115 V. The values for the monitor current consumption can be found in the technical data on the monitor or in the operating manual for the monitor.



► Depending on your device configuration level, plug the monitor power cable into either the monitor socket of the device (1) or a grounded power outlet (2).

i When you connect the monitor to the monitor socket of the device, it automatically switches off as soon as the device switches off.

Connecting the mouse

Depending on the equipment level selected, your device will be supplied with a USB mouse or a PS/2 mouse.

Connecting a USB mouse

► Connect the USB mouse to one of the USB ports on the device.

Connecting a PS/2 mouse

i If you do not attach a mouse to the PS/2 mouse port, you can disable the mouse controller in the *BIOS Setup* in order to free the IRQ12 for a different application.

► Connect the PS/2 mouse to the PS/2 mouse port of the device.

Connecting the keyboard

Depending on the equipment level selected, your device will be supplied with a USB keyboard or a PS/2 keyboard.

Connecting a USB keyboard

Use the supplied keyboard cable only.

► Plug the rectangular connector of the keyboard cable into the rectangular socket on the underside or on the rear of the keyboard.

► Insert the flat rectangular USB plug of the keyboard cable into one of the device's USB ports.

Connecting a PS/2 keyboard

Use the supplied keyboard cable only.

► Plug the rectangular connector of the keyboard cable into the rectangular socket on the underside or on the rear of the keyboard.

► Plug the round plug of the keyboard cable into the keyboard port on the device.

Connecting external devices to the parallel (optional) or serial port

External devices can be connected to the parallel or serial port (e.g. a printer or a modem).

► Connect the data cable to the external device.

► Depending on the device, connect the data cable to the parallel port or the serial port.

For an exact description of how to connect external devices to the corresponding port, please refer to the documentation of the external device.

Port settings

You can change the port settings (e.g. address, interrupt) in the *BIOS Setup*.

Device drivers

The devices connected to the parallel or serial port require drivers. Your operating system already includes many drivers. If the required drive is missing, install it. Current drivers are usually available on the Internet or will be supplied on a data carrier.

Connecting external devices to the USB ports

You can connect a wide range of external devices to the USB ports (e.g. printer, scanner, modem or keyboard).

USB devices are hot-pluggable. This means you can connect and disconnect USB cables while your device is switched on.

Additional information can be found in the documentation for the USB devices.

► Connect the data cable to the external device.
► Connect the data cable to one of the USB ports on your device.

Device drivers

The external USB devices you connect to the USB ports usually require no driver of their own, as the required software is already included in the operating system. However, if the external USB device requires its own software, please install it from the data carrier provided with the USB device.

To ensure the transmission capacity of USB 2.0, the cable from the external USB device to the USB port of your device must not be longer than 3 m.

Operation

Switch the device on

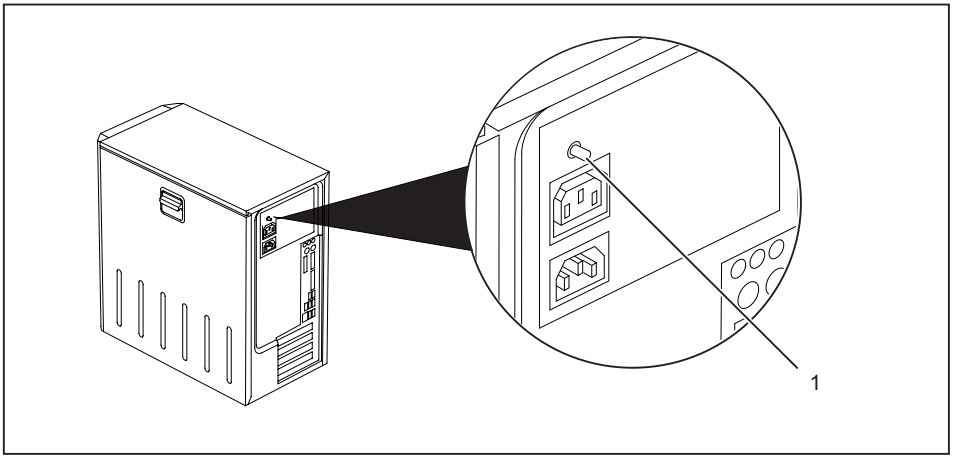
► If necessary, switch the monitor on (see the operating manual for the monitor).
► Switch on the device using the main power switch located on the rear of the device (if present).
► Press the ON/OFF switch on the front of the device.
↳ The power-on indicator lights green and the device is started.

Switching on a device when the lithium battery is discharged (0-Watt devices)

A 0-Watt device consumes no current when it is switched off and in the quiescent state.

Your 0-Watt device is equipped with an emergency on button (primary resume button) which can be used if it can no longer be started, for instance because the lithium battery is discharged.

After the emergency on button (1) has been pressed for a short time, the device can be switched on again using the ON/OFF switch at the front of the device.



► Press the emergency on button (1) to start the device.

Switching off the device

► Shut down the operating system in a defined manner. In Windows: via the *Start* menu and the *Turn Off Computer* function.

► If the operating system does not automatically switch the device into energy-saving mode or switch it off, press the ON/OFF switch. Warning, this could lead to a loss of data!

↳ If the device is in standby, it consumes a minimum of energy.

► Switch the device off at the main switch (if present).

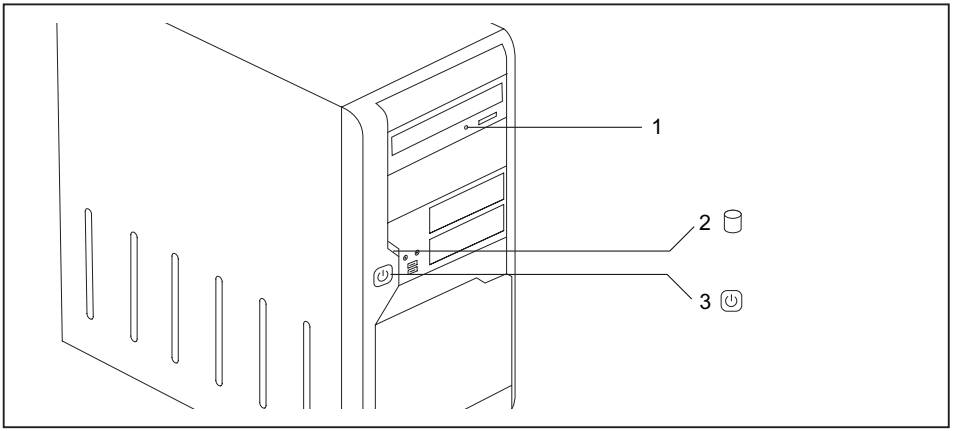
↳ The device no longer uses any power.

The main switch and the ON/OFF switch do not disconnect the device from the mains voltage. To completely disconnect from the mains voltage, remove the power plug from the power socket.

► If necessary, switch the monitor off (see the operating manual for the monitor).

Indicators on the device

The indicators are on the front of the casing. Which indicators are available on your device depends on the configuration level you have selected.

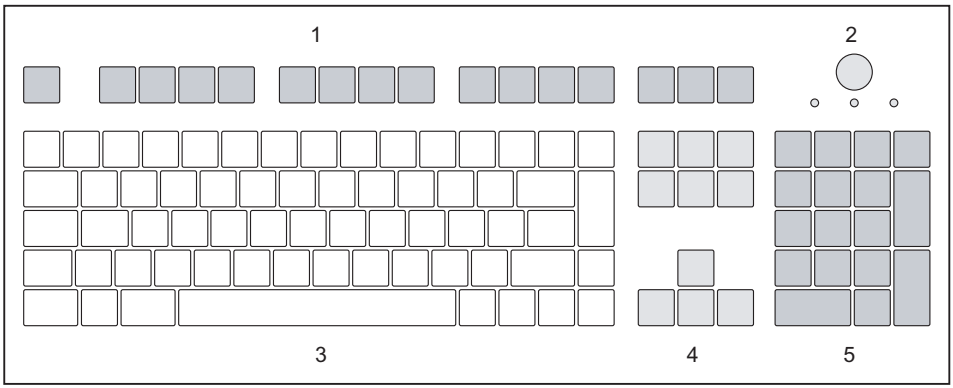


	Indicator	Description
1	Drive indicator	The indicator lights up when the CD-ROM or DVD drive of the device is accessed. You must never under any circumstances remove the CD/DVD while the indicator is lit.
2	Hard disk indicator	The indicator lights up when the hard disk drive of the device is accessed.
3	Power-on indicator	• Indicator is illuminated (green): The device is switched on. • The indicator lights up orange or flashes green (depending on the device type): The device is in energy-saving mode. After being switched on with the ON/OFF switch, the device powers up or returns to the state it was in before it entered energy-saving mode. • The indicator is not illuminated: The device is switched off (power switch at 0 or disconnected from the mains) or ready. If the device is ready it can be switched on with the ON/OFF switch.

In an energy-saving mode the device must not be switched off with the main power switch (if present) or disconnected from the mains, as this may result in data loss.

Keyboard

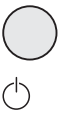
The illustrated keyboard is an example and may differ from the model you use.



1 = Function keys
2 = On/off switch (optional)
3 = Alphanumeric keypad
4 = Cursor keys
5 = Numeric keypad (calculator keypad)

Important keys and keyboard shortcuts

The description of the following keys and keyboard shortcuts applies to Microsoft operating systems. Details of other keys and keyboard shortcuts can be found in the documentation for the relevant application program.



On/off switch (optional)

Depending on the setting in the *BIOS Setup*, the device can be switched on or off with this switch. Some operating systems allow you to configure additional functions of the ON/OFF switch in the Control Panel.

With some keyboards the ON/OFF switch can only be used with an ACPI (Advanced Configuration and Power Management Interface). Otherwise the key is inoperative. The mainboard must support this function.

Enter key

confirms the highlighted selection. The Enter key is also referred to as the "Return" key.

Start key

calls up the Windows *Start* menu.

Menu key

calls up the menu for the marked item (Windows).

Shift key

enables upper-case letters and the upper key symbols to be displayed.

Alt Gr key

produces a character shown on the bottom right of a key (e.g. the @ sign on the Q key).

Num Lock key

By pressing the Num Lock key you switch between the upper- and lower-case levels of the calculator keypad.

When the Num Lock indicator is lit the numeric keypad and arithmetic keys are active.

When the Num Lock indicator is not lit the cursor control functions on the Numeric keypad are active.

Ctrl key

performs a special operation when pressed in conjunction with another key. The Ctrl key is also referred to as "Control" or the "Control key".

Windows security/Task-Manager

This key combination starts the Windows security / Task Manager window.

Settings in BIOS Setup

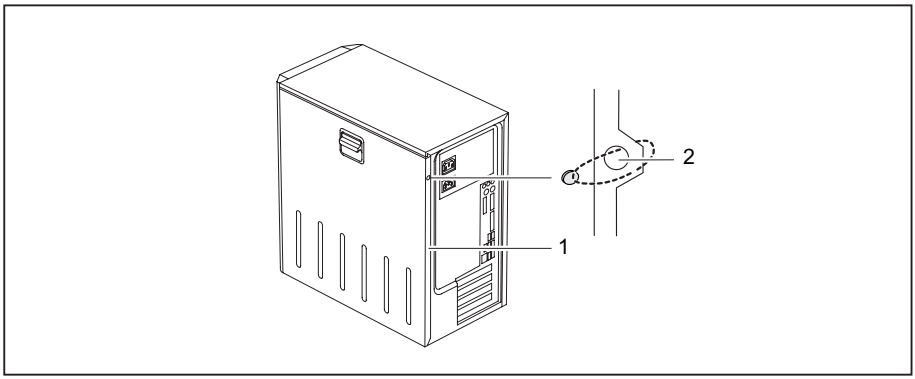
In *BIOS Setup*, you can set the system functions and the hardware configuration of the device. When the PC is delivered, the default entries are valid (see "BIOS Setup" manual or manual for the mainboard). You can customise these settings to your requirements in the *BIOS Setup*.

Property and data protection

Software functions and mechanical locking offer a broad range of functions for protecting your device and your personal data from unauthorised access. You can also combine these functions.

The following illustrations may differ slightly from your device, depending on its configuration level.

Anti-theft protection and lead-sealing



1 = Fixture for Kensington Lock 2 = Holes for padlock

Anti-theft protection

You can protect your device from theft

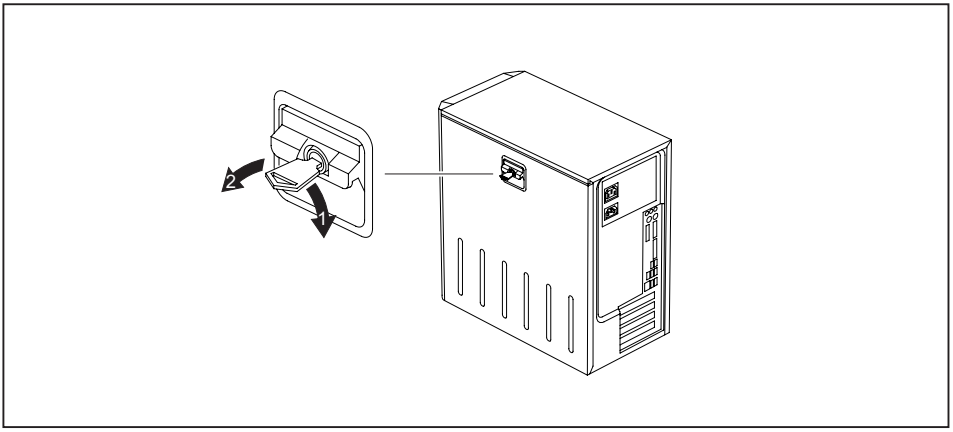
- with the fixture for the Kensington Lock (1) and a Kensington MicroSaver. Consult the manual for your Kensington Lock.
- with the holes (2) and a padlock and chain which you have connected to a fixed object beforehand.

Lead-sealing

To prevent unauthorised persons from opening the system unit, the casing can be lead-sealed. To do this, feed the sealing chain through the holes (2) and seal the chain with the lead seal.

Mechanical casing lock (optional)

With the casing lock you can mechanically lock the casing to prohibit unauthorised persons from opening it. The keys can be found on the rear panel of your device.



Locking the casing

► Turn the key in the direction of the arrow (1).

Unlocking the casing

► Turn the key in the direction of the arrow (2).

BIOS setup security functions

The *Security* menu in *BIOS Setup* offers you various options for protecting your personal data against unauthorized access, e.g.:

- Prevent unauthorized access to *BIOS Setup*
- Prevent unauthorised system access
- Prevent unauthorised access to the settings of boards with their own BIOS
- Activate virus warnings
- Protect BIOS from overwriting
- Protect the device from being switched on by an external device

You can also combine these functions.

You will find a detailed description of the *Security* menus and how to assign passwords in the manual for the mainboard or in the "BIOS Setup" manual.

Access authorisation via SmartCard

In systems equipped with a SmartCard reader, access can be restricted to those users who have a corresponding SmartCard.

Access protection with SystemLock

With *SystemLock*, you can protect your system from unauthorised booting. A system can then only be booted when the user inserts a valid SmartCard into the SmartCard reader and enters his/her personal code number (PIN). To use *SystemLock*, you require the following components:

- External or internal SmartCard reader
- *SystemLock* installed (see "BIOS Setup" manual)
- SmartCard

SystemLock controls access to your device. When a SmartCard is initialised, permissions are assigned for system access (system, setup, system+setup, admin). You can configure several SmartCards for one system and initialise them with different permissions. In addition, you can protect access to your hard disk

In this way users can be divided into user groups. Users of a user group use SmartCards with the same permissions.

If you also want to use other security software in addition to *SystemLock* (e.g. *SMARTY*), please read your security software documentation beforehand.

SystemLock rights

You can initialise a SmartCard with one of the following rights:

System	The system starts following entry of the user PIN. You can change the user PIN.
Setup	You can open and change the *BIOS Setup* and change the user PIN.
System+Setup	The system starts following entry of the user PIN. You can open and change the *BIOS Setup* and change the user PIN.
Admin	The system starts following entry of the user PIN. You can change the user PIN and the administrator PIN, unlock locked SmartCards, open and change the *BIOS Setup* and generate additional SmartCards for this system.

For instructions on how to install and use *SystemLock*, and how to initialise SmartCards, see the "BIOS Setup" manual.

Operating the SmartCard reader

► Connect the external SmartCard reader to your system as described in the instructions for the SmartCard reader.

↳ After the device is switched on, you will be prompted to insert your SmartCard.

Troubleshooting and tips

Refer to the safety notes in the "Safety" manual and in the "Getting started", Page 12 chapter when connecting or disconnecting cables.

If a fault occurs, try to correct it as described in the following documentation:

- in this chapter
- in the documentation for the connected devices
- in the help systems of the software used
- in the documentation for your operating system

Help if problems occur

Should you ever have a problem with your computer that you cannot solve yourself, in many cases you can solve it quickly using the *SystemDiagnostics* program pre-installed on your computer.

► To start the *SystemDiagnostics* program, click *Start symbol - Program - Fujitsu - SystemDiagnostics*.

► If a problem is detected during the test run, the *SystemDiagnostics* program outputs a code (e.g. DIFS code YXXX123456789123).

► Take a note of this DIFS code and the ID number of your device. The ID number can be found on the type rating plate on the back of the casing.

► For further clarification of the problem, contact the Help Desk for your country (see the Help Desk list or visit the Internet at "http://ts.fujitsu.com/support"). When you do this, please have ready the identity number and serial number of your system and the DIFS code.

Troubleshooting

Power indicator remains off after you have switched on your device

Cause	Remedy
The mains voltage supply is faulty.	► Check that the power cable is correctly plugged into the device and into a grounded mains outlet. ► Check that the main switch at the rear of the monitor is set to the "I" position. ► Switch the device on.
Internal power supply overloaded.	► Pull the power plug of the device out of the mains outlet. ► Wait a moment. ► Plug the power plug into a properly grounded mains outlet again. ► Switch the device on.

The device cannot be switched off with the ON/OFF switch.

Cause	Remedy
The device has not been switched on with the ON/OFF switch.	► Press the ON/OFF switch again.
System crash	► Keep the on/off switch pressed for at least 4 seconds until the machine switches off. Caution: This can lead to a loss of data! This procedure does not allow the operating system to shut down in an orderly way. The next time the system is started there may well be error messages.

The device cannot be switched on with the ON/OFF switch (0-Watt devices)

Cause	Troubleshooting
The lithium battery is discharged.	► Press the emergency on button at the rear of the device, see chapter "Switching on a device when the lithium battery is discharged (0-Watt devices)", Page 22.

Monitor remains blank

Cause	Remedy
Monitor is switched off.	► Switch your monitor on.
Power saving has been activated (screen is blank)	► Press any key on the keyboard. **or** ► Deactivate the screen saver. If necessary, enter the appropriate password.
Brightness control is set to dark	► Adjust the brightness control. For detailed information, please refer to the operating manual supplied with your monitor.
Power cable not connected	► Switch off the monitor and the device. ► Check that the monitor power cable is properly connected to the monitor and to a grounded mains outlet or to the monitor socket of the device. ► Check that the device power cable is properly plugged into the device and a grounded mains outlet. ► Switch on the monitor and the device.

Cause	Remedy
Monitor cable not connected	► Switch off the monitor and the device. ► Check that the monitor cable is properly connected to the device and monitor. ► Switch on the monitor and the device.
Wrong monitor has been set under Window XP	► Restart the device. ► Press F8 while the system is booting. Either the *Windows Advanced Start Options* menu or the menu for selecting the operating system appears. ► If the menu for selecting the operating system appears, press F8. ► Select *Safe Mode* or *Safe Mode with Network*. ► Go to *Start – Settings – Control Panel – Display* and the tabs *Appearance*, *Themes*, *Settings* to set the correct values for the connected monitor as described in the operating manual of the monitor.
Incorrect setting for the monitor in Windows Vista	► Restart the device. ► Press F8 while the system is booting. Either the *Windows Advanced Start Options* menu or the menu for selecting the operating system will appear. ► If the menu for selecting the operating system appears, press the F8 key. ► Select*Safe Mode* or *Safe Mode with Network*. ► Go to *Start symbol – (Settings) – Control Panel – Appearance and Personalization – Personalization* and enter the correct values for the connected monitor as described in the operating manual of the monitor.

Cause	Remedy
Wrong monitor has been set under Windows 7	► Restart the device. ► Press F8 while the system is booting. Either the *Windows Advanced Start Options* menu or the menu for selecting the operating system appears. ► If the menu for selecting the operating system appears, press F8. ► Select *Safe Mode* or *Safe Mode with Network*. ► Go to *Start – Control Panel – Appearance and Personalization – Display* to enter the correct values for the connected monitor as described in the operating manual of the monitor.
The wrong RAM modules have been inserted	► See the technical manual for the mainboard for information on which memory modules can be used.

No mouse pointer displayed on the screen

Cause	Remedy
The mouse is not correctly connected.	► Shut down the operating system properly. ► Switch the device off. ► Check that the mouse cable is properly connected to the system unit. If you use an adapter or extension lead with the mouse cable, check the connections. ► Make sure that only one mouse is connected. ► Switch the device on.
The mouse controller is not enabled.	► Check in the *BIOS-Setup* whether the mouse controller is *enabled*. ► Check that the mouse driver is properly installed and is present when the application programme is started. Detailed information can be found in the user guide for the mouse and application programme.

Time and/or date is not correct

Cause	Remedy
Time and date are incorrect.	► Set the correct time and date within the operating system you are using. **or** ► Set the correct time and/or date in the *BIOS Setup*.
The lithium battery is discharged.	► If the time and date are repeatedly wrong when you switch on your device, replace the lithium battery (see "Replacing the lithium battery", Page 61).

Error messages on the screen

Error messages and their explanations are provided:

- in the technical manual for the mainboard
- in the documentation for the programs used

Installing new software

When installing programs or drivers, important files may be overwritten and modified. To be able to access the original data in the event of any problems following installation, you should backup your hard disk prior to installation.

Restoring the hard disk contents

The instructions on how to restore the content of the hard disk drive under Windows 7 can be found in the "Recovery Guide" manual.

Tips

Topic	Tip
Out of system resources	► Close unnecessary applications. **or** ► Run the applications in a different order.
Other manuals	Further manuals are provided as PDF files on the "Drivers & Utilities" CD/DVD.

System expansions

Repairs to the device must only be carried out by qualified technicians. Unauthorised opening or incorrect repair may greatly endanger the user (electric shock, fire risk) and will invalidate your warranty.

After consulting the Hotline/Help Desk, you may remove and install the components described in this manual yourself.

If you remove or install components without consulting the Hotline/Help Desk, then the warranty of your device will become void.

As the device has to be shut down in order to install/deinstall system hardware components, it is a good idea to print out the relevant sections of this chapter beforehand.

The following illustrations may differ slightly from your device, depending on its configuration level.

If further documentation was delivered with your device, please also read this through carefully.

In addition, before removing or installing system components, please pay attention to the following:

The device must be switched off when installing/removing the system expansions and may not be in energy-saving mode.

Remove the power plug before opening the device.

Be careful that no wires become trapped when removing or installing components.

When installing components that become very hot, make sure that the maximum permissible temperature is not exceeded.

An update of the BIOS may be required for a system expansion or hardware upgrade. Further information can be found in the BIOS help section or if necessary in the Technical Manual for the mainboard.

Information about boards

Take care with the locking mechanisms (catches and centring pins) when you are replacing boards or components on boards.

Note that some components on the mainboard may be very hot if the device was in use shortly before the casing was removed.

These components can be marked with the adjacent symbol.

To prevent damage to the board or the components and conductors on it, please take care when you insert or remove boards. Make sure expansion boards are inserted straightly.

Never use sharp objects (screwdrivers) for leverage.

Boards with electrostatic sensitive devices (ESD) are identifiable by the label shown.

When handling boards fitted with ESDs, you must always observe the following points:

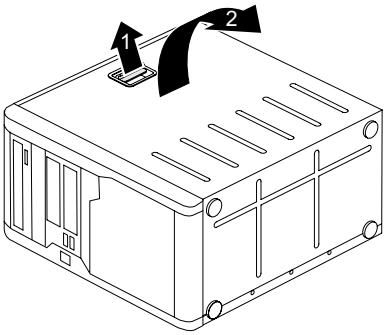
- You must always discharge static build up (e.g. by touching a grounded object) before working.
- The equipment and tools you use must be free of static charges.
- Only touch or hold the boards by the edge or, if present, at the areas marked green (Touch Points).
- Never touch pins or conductors on boards fitted with ESDs.

Opening the casing

► Switch the device off. The device must not be in power-saving mode.

Please observe the safety information in "Important notes", Page 9.
Disconnect the mains plug from the mains outlet.
Only insert the power plug after you have closed the casing.

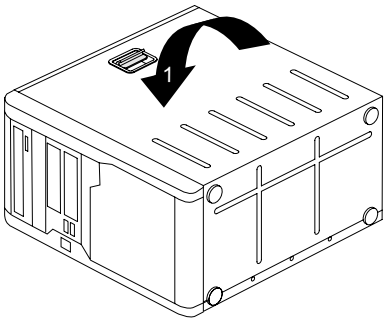
► Remove any connected wires which are in the way.
► On devices with a casing lock: Unlock the casing.
► Lay the device on its side.



► Pull the locking device (1) and swivel the side part in the direction of the arrow (2).

Closing the casing

► Insert the side part in the guide rail on the lower part of the casing.



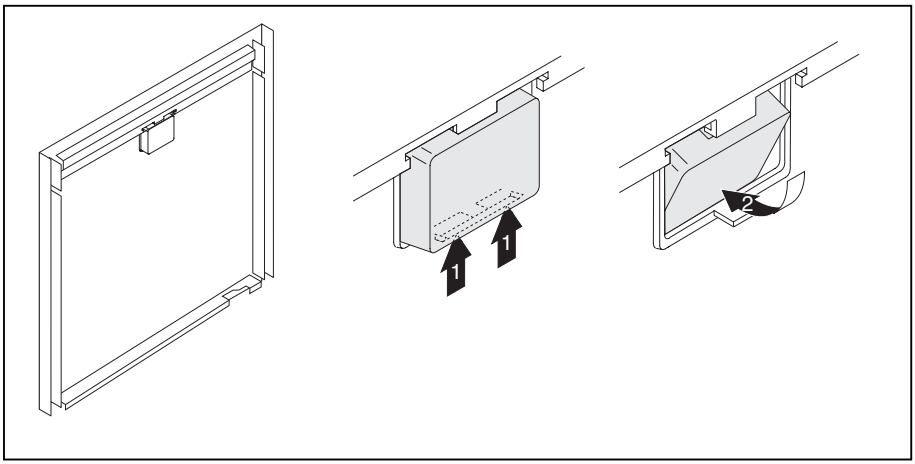
► Swivel the side cover in the direction of the arrow (1) until it engages.
► On devices with a casing lock: Lock the casing.
► Reconnect the cables that you disconnected before.

Installing the locking device with casing lock

Removing the locking device

► Open the casing (see "Opening the casing", Page 37).

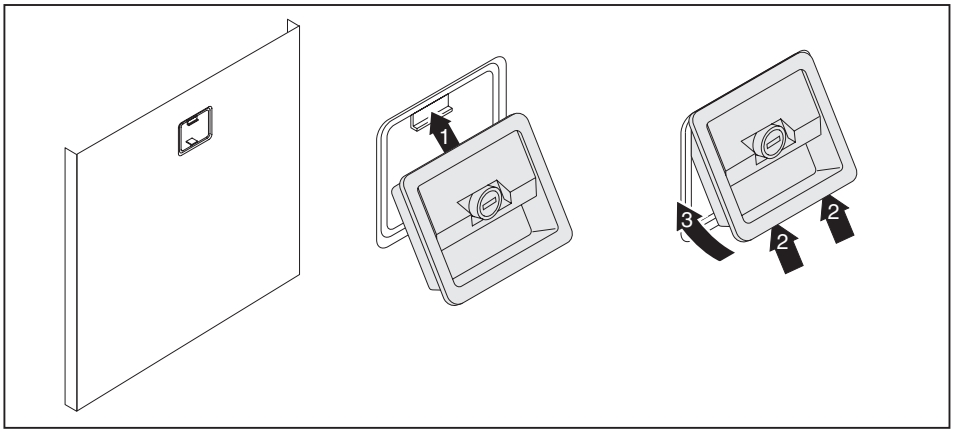
► Place the removed side part on a flat surface with the inside facing upwards.



► Press the catch in the direction of the arrow (1).

► Carefully thread the locking device out of the side part in the direction of the arrow (2).

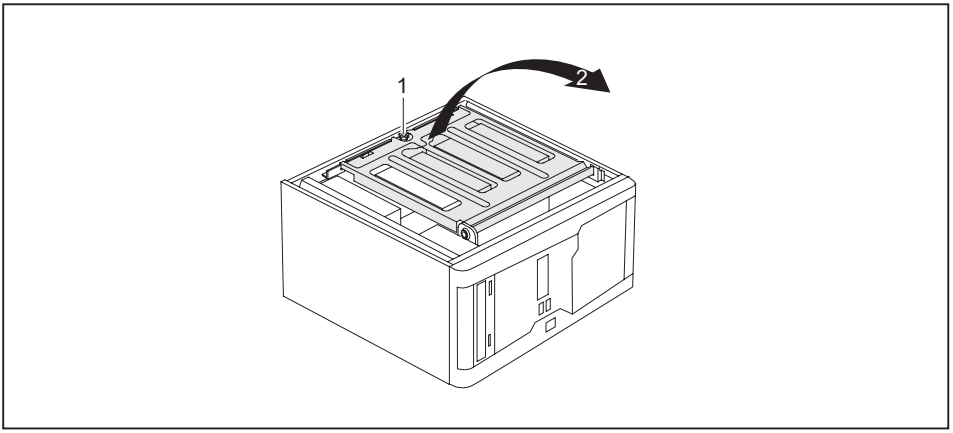
Installing the locking device with casing lock



- ► Turn the removed side part over (so that the outside faces upwards).
- ► Guide the locking device with the casing lock in the direction of the arrow (1) into the side part.
- ► Press the catch in the direction of the arrow (2) and at the same time press the locking device into the side part (3) until the catch engages.

Opening the drive cage

► Open the casing (see "Opening the casing", Page 37).

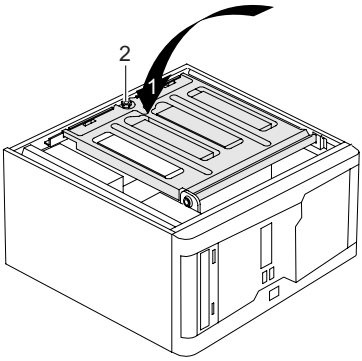


► Unscrew the knurled screw (1).

► Fold open the drive cage (2).

Thanks to the integrated torque controller the drive cage will stop in any position.

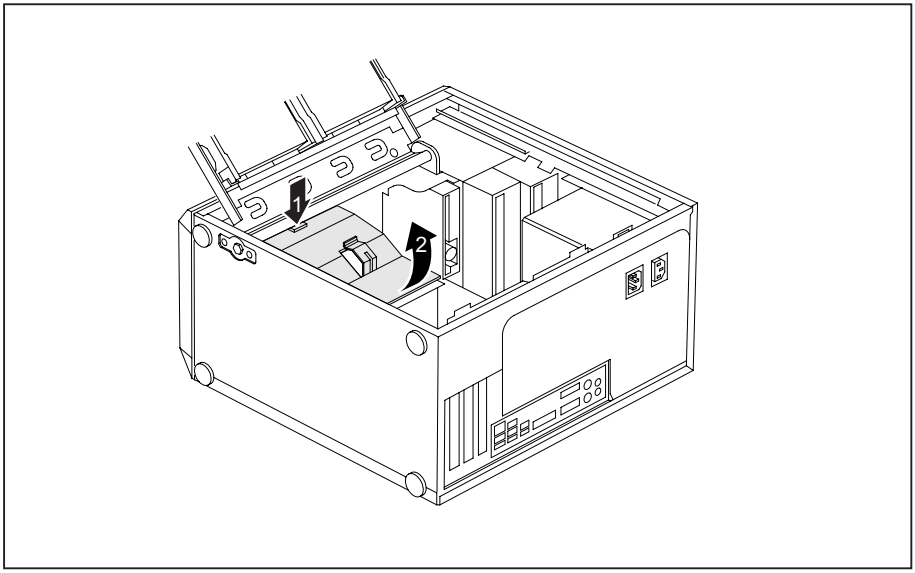
Closing the drive cage



► Fold down the drive cage (1). Be careful that no wires become trapped.
► Secure the drive cage with the knurled screw (2).
► Close the casing (see "Closing the casing", Page 38).

Removing ventilation duct

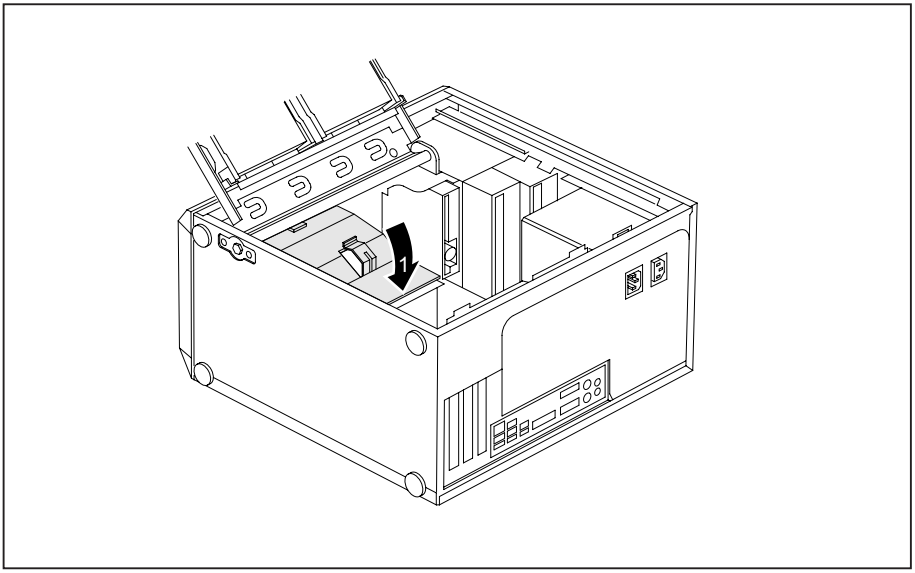
When removing the ventilation duct, be careful not to damage the processor cooler(s) on the mainboard.



- ► Open the casing (see "Opening the casing", Page 37).
- ► Fold up the drive cage (see "Opening the drive cage", Page 41).
- ► Unhook the wires from the holder on the ventilation duct.
- ► Remove any connected wires which are in the way.
- ► Unlock the ventilation duct by pressing locking hooks in the direction of the arrow (1).
- ► Keep pressing the locking hook and pull the ventilation duct in the direction of the arrow (2) out from the casing.

Installing the ventilation duct

When fitting the ventilation duct, be careful not to damage the processor cooler(s) on the mainboard.



- ► Insert the latches on the underside of the ventilation duct into the corresponding slots in the casing.
- ► Press the ventilation duct into the casing in the direction of the arrow (1) so that the locking hook is felt to engage.
- ► Reconnect the cables that were previously disconnected.
- ► Hook the wires into the holder on the ventilation duct.
- ► Fold down the drive cage (see "Closing the drive cage", Page 42).
- ► Close the casing (see "Closing the casing", Page 38).

Installing and removing a board

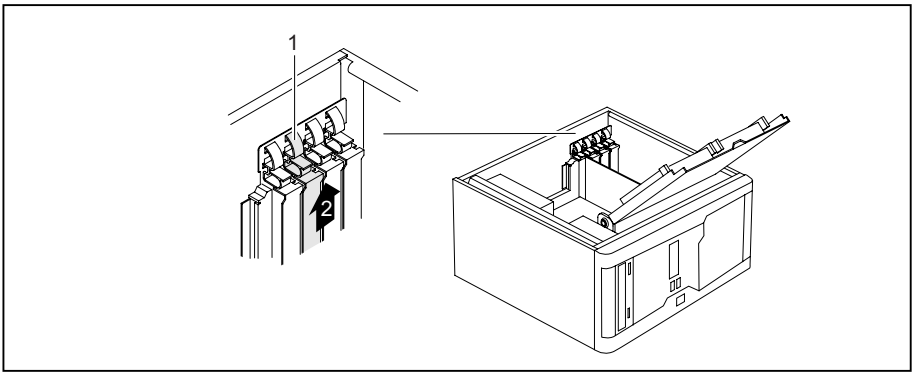
You can install additional modules in order to increase the performance of your machine.

The number, position and arrangement of the board slots on the mainboard can be found in the manual for the mainboard. Boards may already be installed on shipment.

Installing a board

► Open the casing (see "Opening the casing", Page 37).

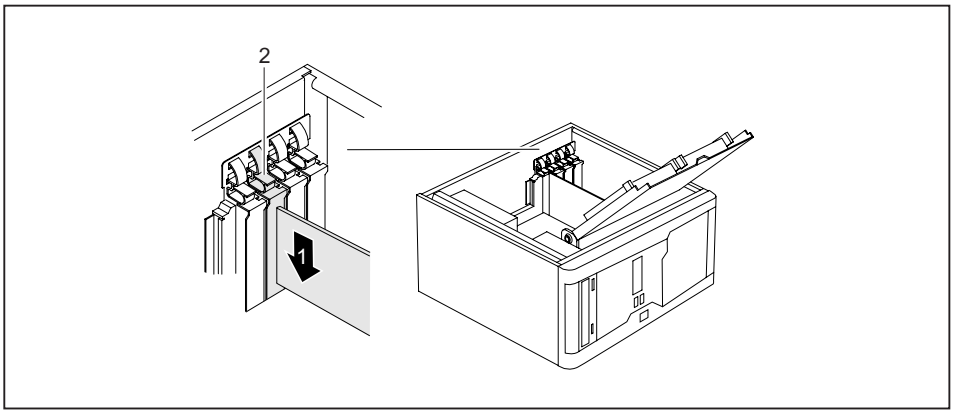
► Fold up the drive cage (see "Opening the drive cage", Page 41).



► Press on the curved part of the retaining clip (1).

► Pull the slot cover out of the slot in the direction of the arrow (2).

Do not throw away the slot cover. For cooling, protection against fire and in order to comply with EMC regulations, you must refit the slot cover if you remove the board.



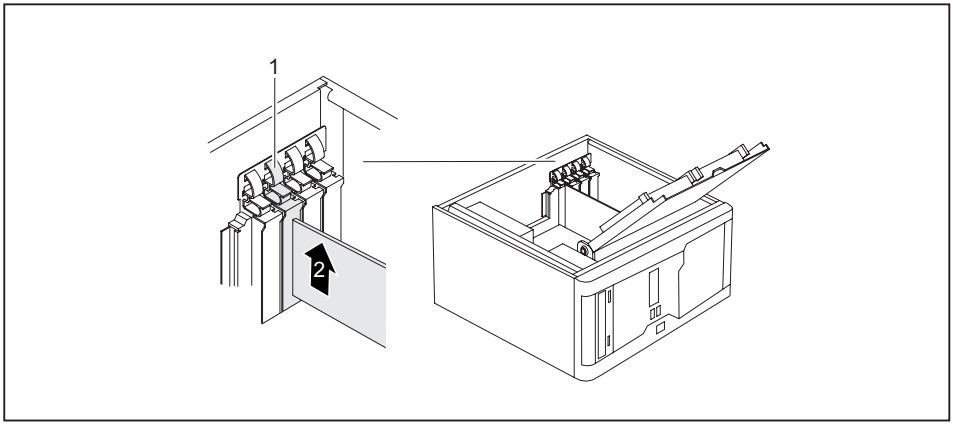
- ► Push the board into the slot (1).
- ► Press on the retaining clip until it you feel it engage (2).
- ► If necessary, connect the cables to the board.
- ► Fold down the drive cage (see "Closing the drive cage", Page 42).
- ► Close the casing (see "Closing the casing", Page 38).

If you have installed or removed a board, please check the relevant PCI slot settings in the *BIOS Setup*. If necessary, change the settings. Further information is provided in the PCI board documentation.

Information about the installation of low profile boards can be found in the "Low-profile boards", Page 48 chapter.

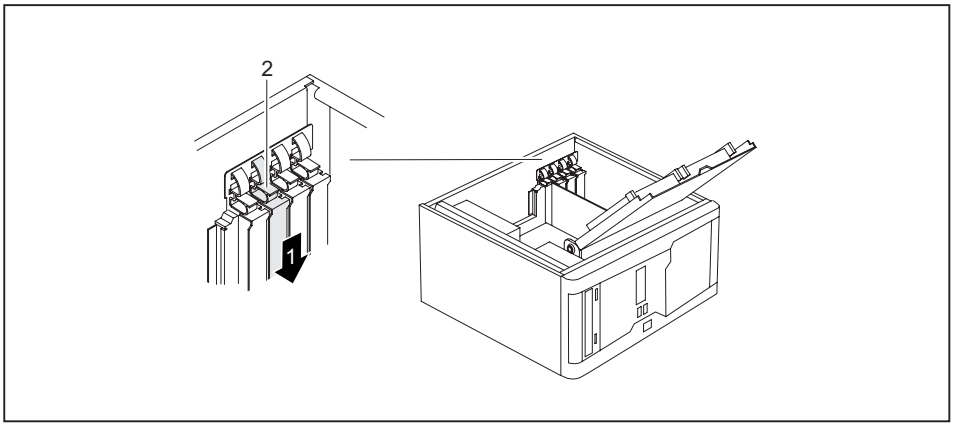
Removing a board

- ► Open the casing (see "Opening the casing", Page 37).
- ► Fold up the drive cage (see "Opening the drive cage", Page 41).
- ► Disconnect the cables connected to the board.



- ► Press on the curved part of the retaining clip (1).
- ► Pull the board out of the slot in the direction of the arrow (2).
- ► Place the board in suitable packaging.

For cooling, protection against fire, and in order to comply with EMC (electromagnetic compatibility) regulations, you must refit the slot cover.



- ► Slide the slot cover into the slot (1).
- ► Press on the retaining clip until it you feel it engage (2).
- ► Fold down the drive cage (see "Closing the drive cage", Page 42).

► Close the casing (see "Closing the casing", Page 38).

If you have installed or removed a PCI board, please check the relevant PCI slot settings in the *BIOS Setup*. If necessary, change the settings. Further information is provided in the PCI board documentation.

Low-profile boards

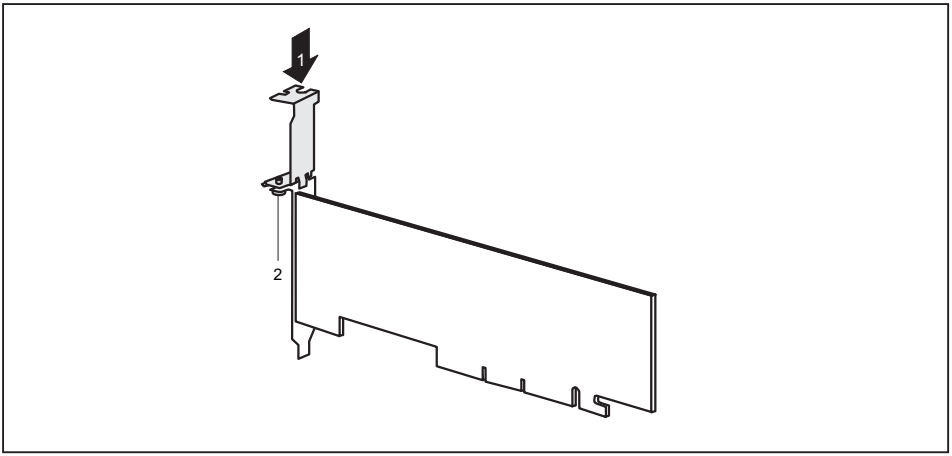
You will need to fit a corresponding slot adapter first before you can install a low-profile board in a normal board slot.

Two-piece slot covers are fitted to the slots intended for low-profile boards. The two pieces are joined together by a screw.

Do not throw away the slot cover. For cooling, protection against fire and in order to comply with EMC regulations, you must refit the slot cover if you remove the board.

► Remove the required slot cover (see "Installing and removing a board", Page 45).

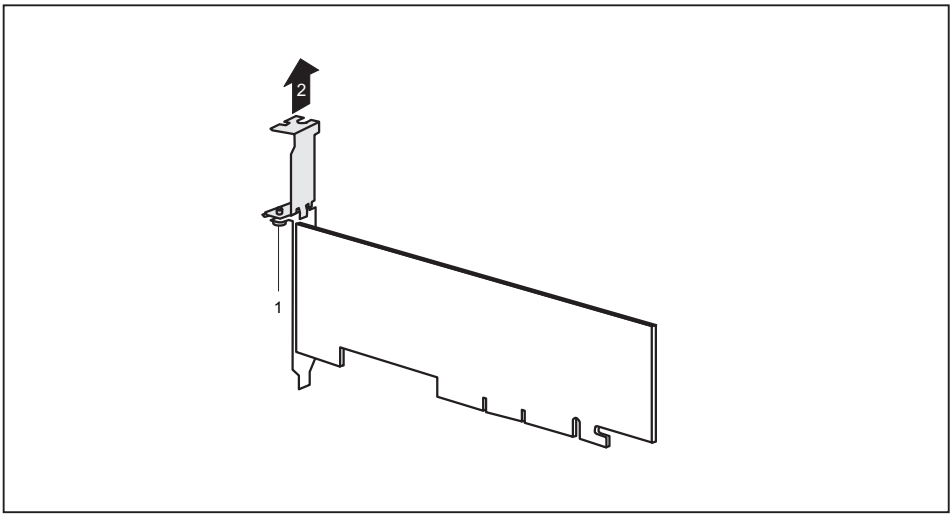
Fitting a slot adapter



► Fit the slot adapter to the slot cover of the low-profile board (1) and screw tight (2).

↳ Now you can install the low-profile board in a suitable slot like a normal board (see "Installing and removing a board", Page 45).

Removing a slot adapter



► Unscrew the screw (1) and remove the slot adapter (2).

Installing and removing optional ports

For further information see "Information about boards", Page 36.

Installing and removing drives

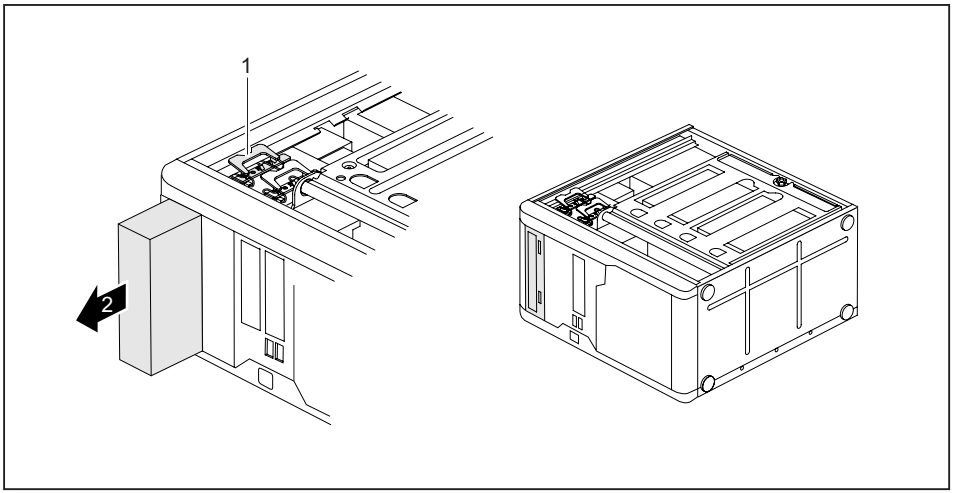
The PC casing can accommodate a total of six drives:

- four accessible drives (two 5¼-inch drives and two 3½-inch drives)
- two non-accessible drives (two 3½-inch drives with half installation height)

"Accessible drives" are e.g. DVD or CD ROM drives, into which a data medium can be inserted from outside. "Non-accessible drives" are for example hard disk drives.

Removing an accessible drive

► Open the casing (see "Opening the casing", Page 37).



► Pull the data and the power supply connectors from the drive.
► Open the retaining clip (1).
► Pull the drive out of the casing in the direction of the arrow (2).
► If necessary, make the required settings on the remaining hard disk drives.
► If you do not install a new drive, secure a cover (optional) at the location so that no foreign bodies can enter the casing.
► Close the casing (see "Closing the casing", Page 38).

i

It may be necessary to modify the entry for the drive in the *BIOS Setup*.

Installing an accessible drive

► Open the casing (see "Opening the casing", Page 37).

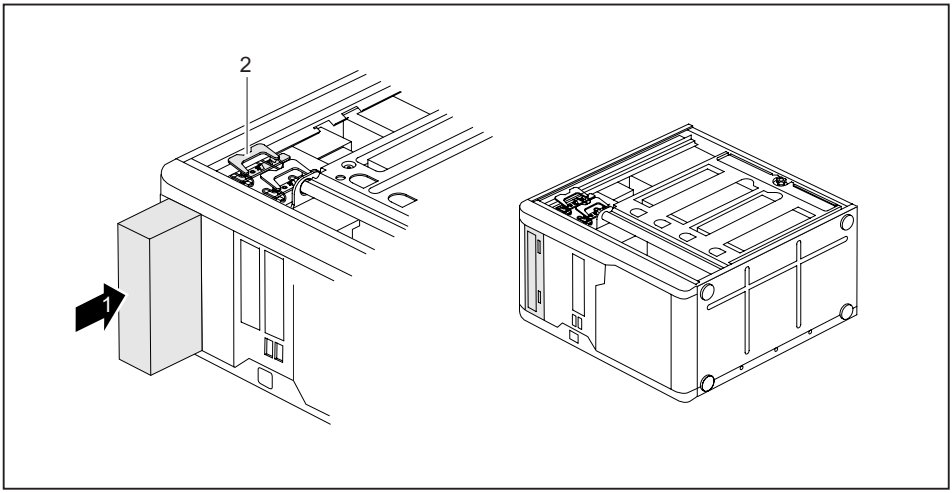
► If you are installing the drive in the upper bay and a cover (optional) is already in place, please remove it.

or

► If you are installing the drive in the lower bay, break out the pre-stamped metal panel on the drive bay opening using a screwdriver.

Do not throw away the cover. For cooling, protection against fire, and in order to comply with EMC (electromagnetic compatibility) regulations, you must refit the cover if you remove the drive again later (see "Removing an accessible drive", Page 50).

► Adjust the required settings on the drive (also on drives which are already installed, if necessary).



► Slide the accessible drive into the casing as far as the stop (1).

► Plug the data and the power supply connectors into the drive. Make sure the polarity is correct.

► Press on the retaining clip (2) and, at the same time, slide it up slightly.

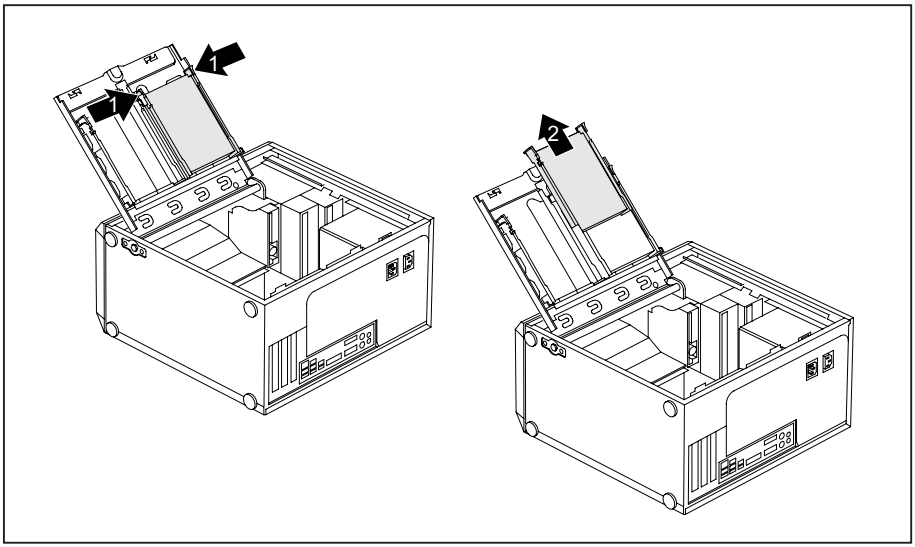
► Close the casing (see "Closing the casing", Page 38).

It may be necessary to modify the entry for the drive in the *BIOS Setup*.

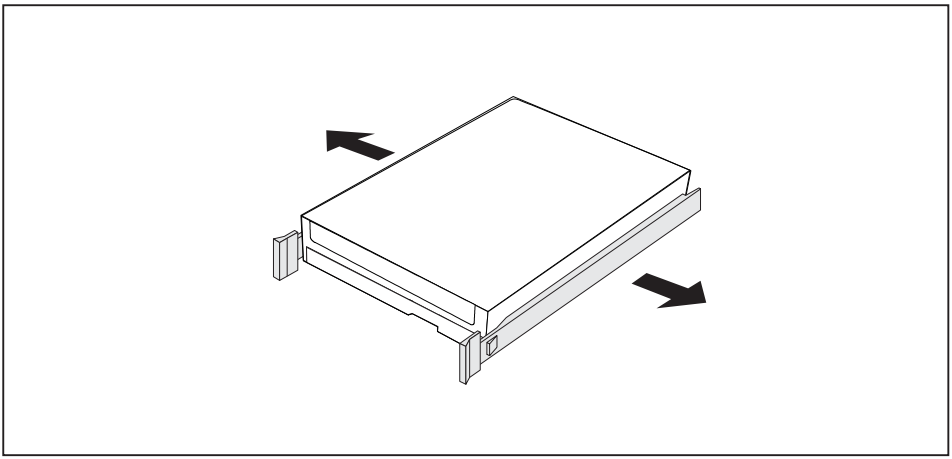
Installing and removing the hard disk drive

Removing the hard disk drive

► Open the casing (see "Opening the casing", Page 37).
► Fold up the drive cage (see "Opening the drive cage", Page 41).
► Disconnect all cables connected to the drive (data cable, power supply cable).



► Slightly press together the EasyChange rails mounted on the hard disk (1) and pull the hard disk drive out of the drive cage in the direction of the arrow (2).
► Pull the EasyChange rails off the hard disk drive.



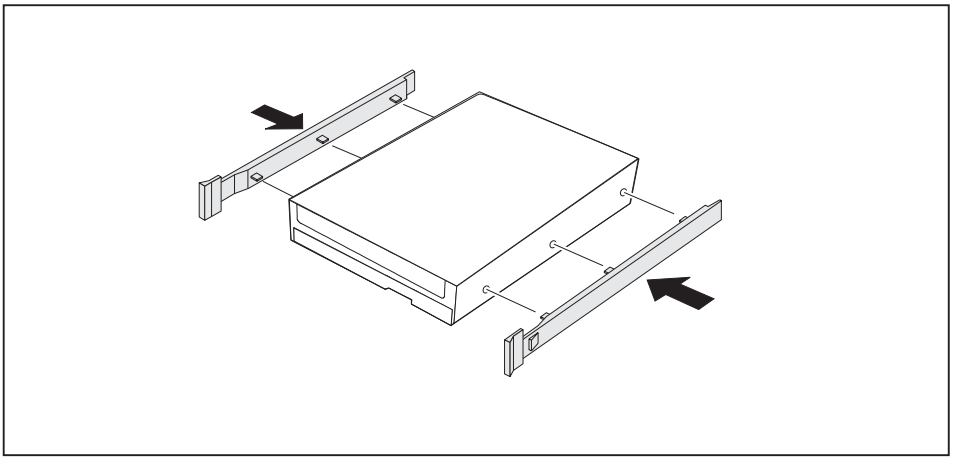
► If you no longer need the EasyChange rails, secure them again at their location in the drive cage.

It may be necessary to modify the entry for the drive in the *BIOS Setup*.

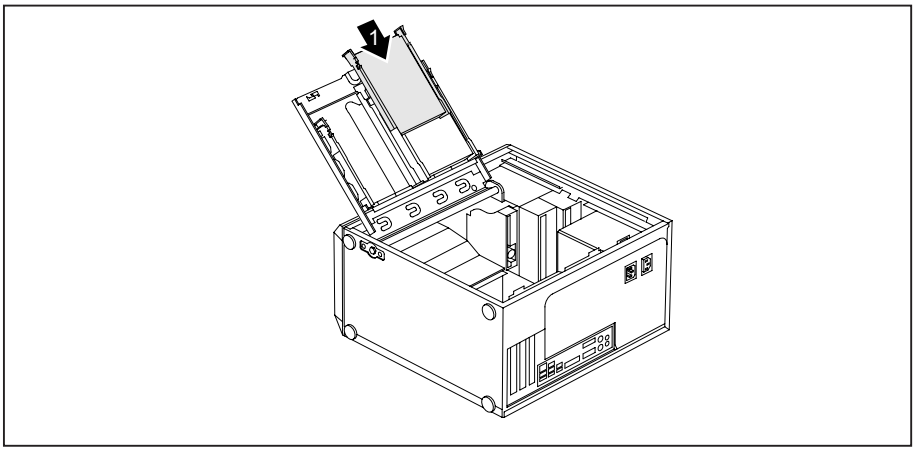
Installing a hard disk drive

► Open the casing (see "Opening the casing", Page 37).
► Fold up the drive cage (see "Opening the drive cage", Page 41).

EasyChange rails for a second hard disk drive are mounted on the drive cage.



► Secure the EasyChange rails on the side of the hard disk by inserting the upper pins of the EasyChange rail in the corresponding holes of the hard disk.



► Slide the hard disk drive with the EasyChange rails in the direction of the arrow (1) into the drive cage. Check that the component side of the hard disk drive faces inwards towards the casing.
► Connect the cables to the hard disk drive.
► Fold down the drive cage (see "Closing the drive cage", Page 42).
► Close the casing (see "Closing the casing", Page 38).

i

It may be necessary to modify the entry for the drive in the *BIOS Setup*.

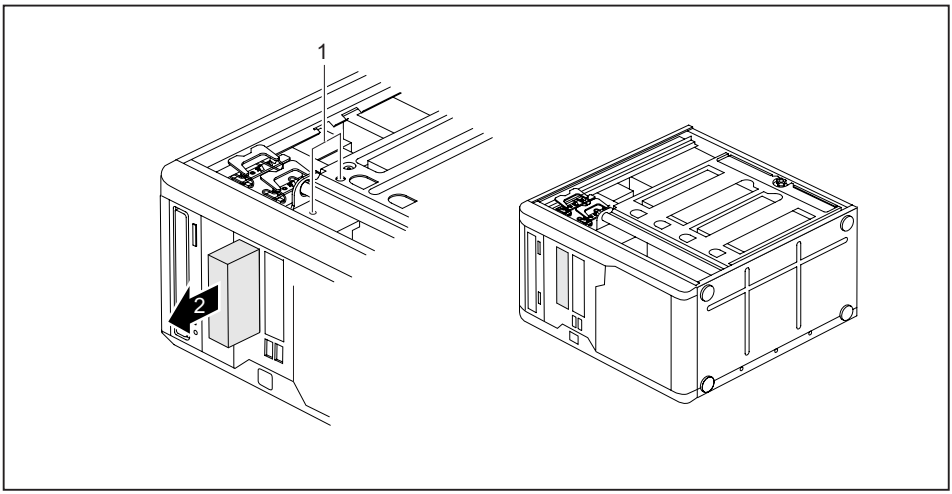
Installing/removing a SmartCard reader and/or WLAN module (optional)

You can also install a SmartCard reader and/or a WLAN module for wireless LAN (Local Area Network) in the installation bay for the 3½ inch hard disk drive.

The SmartCard reader and WLAN module can be installed together in the carrier. However, you can also install only one of the two boards. The WLAN module is installed in the lower slot of the carrier and the SmartCard reader in the upper slot of the carrier. If you want to install the SmartCard reader and the WLAN module together, first install the WLAN module. Removal is carried out in the reverse order.

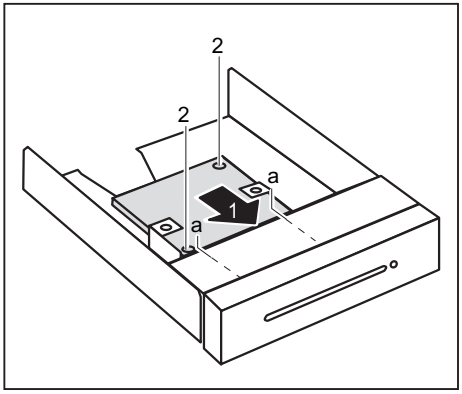
Removing the carrier

- ► Open the casing (see "Opening the casing", Page 37).
- ► Pull the data cable connectors from the carrier.



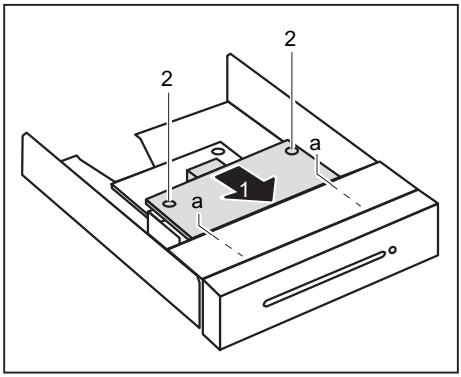
- ► Remove the screws (1) on the right side of the carrier.
- ► Slide the carrier out of the casing in the direction of the arrow (2).

Screwing WLAN module onto carrier



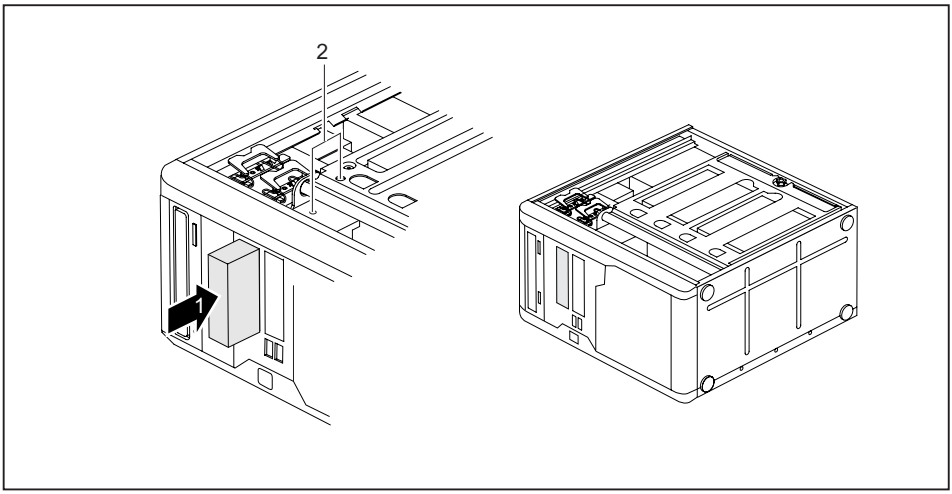
- ► Push the WLAN module - with the component side facing downwards - in the direction of the arrow (1) into the guide (a).
- ► Fasten the WLAN module with the screws (2).

Screw the SmartCard reader onto the carrier



- ► Push the SmartCard reader - with the component side facing downwards - in the direction of the arrow (1) into the guide of the carrier (a).
- ► Secure the SmartCard reader with the screws (2).

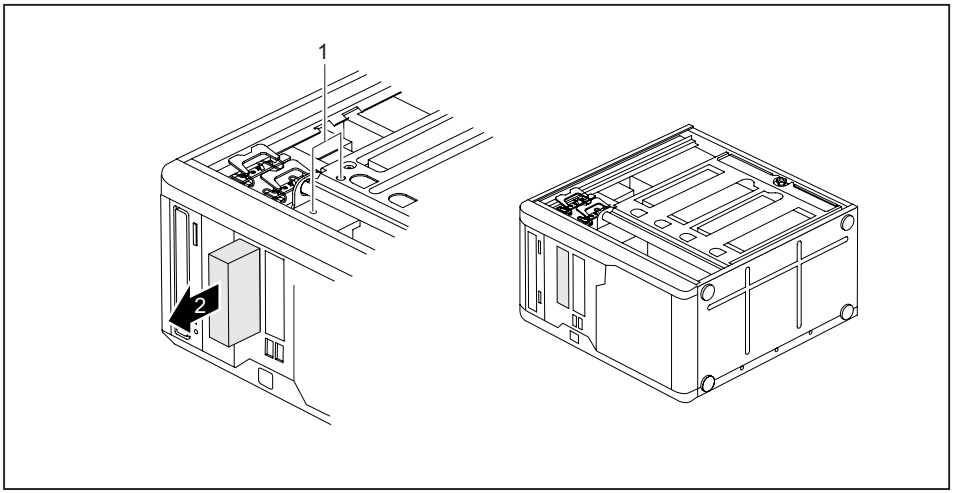
Installing SmartCard reader and/or WLAN module



- ► Push the holder into the PC in the direction of the arrow (1).
- ► Fasten the holder with the screws (2).
- ► Connect the data cable connectors to the holder. Make sure the polarity is correct.
- ► Close the casing (see "Closing the casing", Page 38).

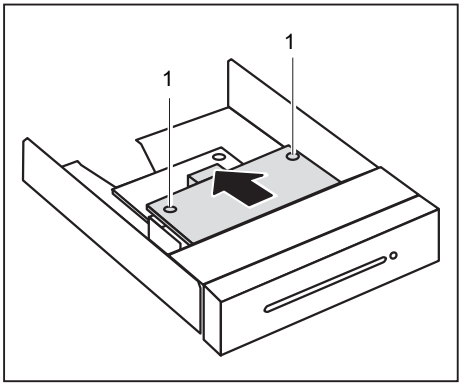
Removing SmartCard reader and/or WLAN module

► Open the casing (see "Opening the casing", Page 37).
► Pull the data cable connectors from the carrier.



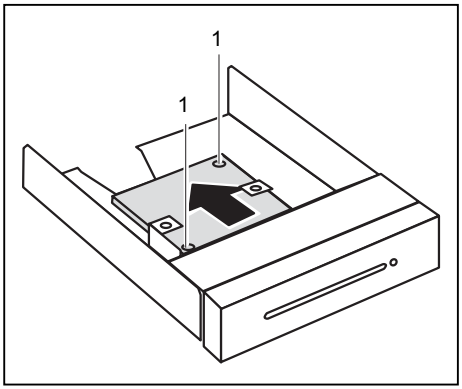
► Remove the screws (1).
► Slide the carrier out of the casing in the direction of the arrow (2).
► Close the casing (see "Closing the casing", Page 38).

Removing SmartCard reader from carrier



► Undo the screws (1).
► Pull the SmartCard reader out of the carrier in the direction of the arrow (2).

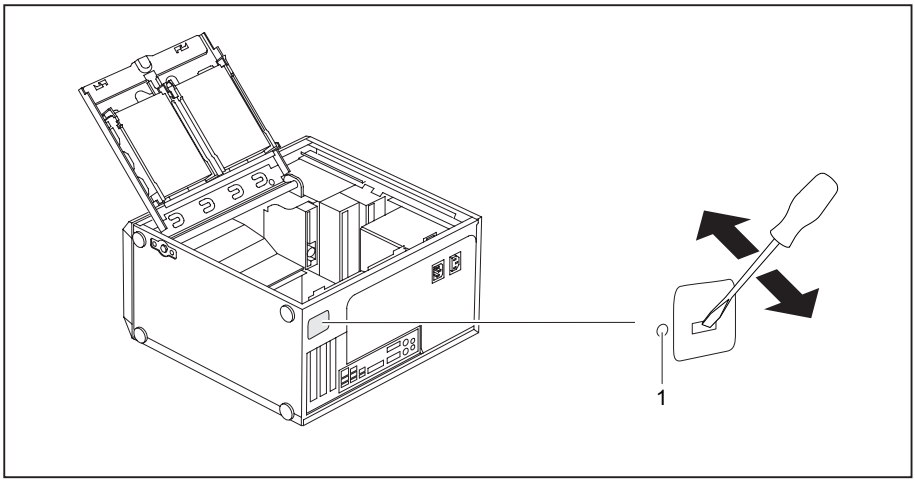
Removing WLAN module from carrier



- ► Undo the screws (1).
- ► Pull the WLAN module out of the holder in the direction of the arrow.

Installing USB ports on the rear panel

Depending on your device configuration, an installation slot for USB interfaces is provided on the back of the casing. As a result, no board slot is occupied.



- ► Insert a screwdriver into the opening and break out the pre-stamped installation opening by moving it backwards and forwards.
- ► Slide the USB ports into the slot and secure them with the screw (1).
- ► Connect the USB cable to the mainboard – refer to the mainboard manual for details.

Mainboard expansions

Details on how to upgrade the main memory or the processor of your device can be found in the manual for the mainboard.

Upgrading main memory

- ► Open the casing (see "Opening the casing", Page 37).
- ► Fold up the drive cage (see "Opening the drive cage", Page 41).
- ► Upgrade the memory according to the description in the manual for the mainboard.
- ► Fold down the drive cage (see "Closing the drive cage", Page 42).
- ► Close the casing (see "Closing the casing", Page 38).

Replacing the processor

- ► Open the casing (see "Opening the casing", Page 37).
- ► Fold up the drive cage (see "Opening the drive cage", Page 41).
- ► Remove the ventilation duct (see "Removing ventilation duct", Page 43).
- ► Replace the processor as described in the manual for the mainboard.
- ► Install the ventilation duct (see "Installing the ventilation duct", Page 44).
- ► Fold down the drive cage (see "Closing the drive cage", Page 42).
- ► Close the casing (see "Closing the casing", Page 38).

Replacing the lithium battery

In order to permanently save the system information, a lithium battery is installed to provide the CMOS-memory with a current. A corresponding error message notifies the user when the charge is too low or the battery is empty. The lithium battery must then be replaced.

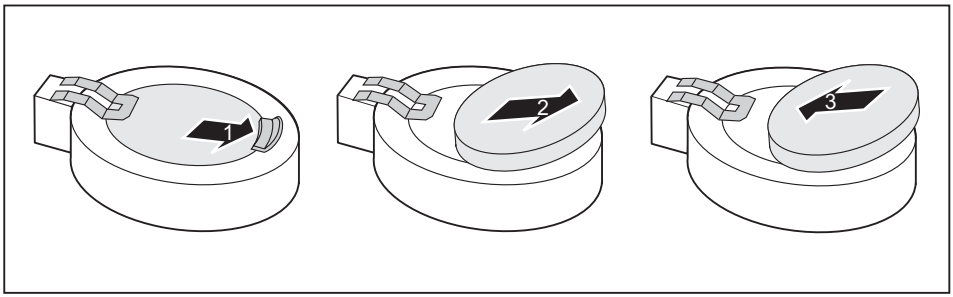
For 0-Watt devices: As an interim solution, the device can be started using the emergency on button at the rear, see chapter "'Switching on a device when the lithium battery is discharged (0-Watt devices)", Page 22".

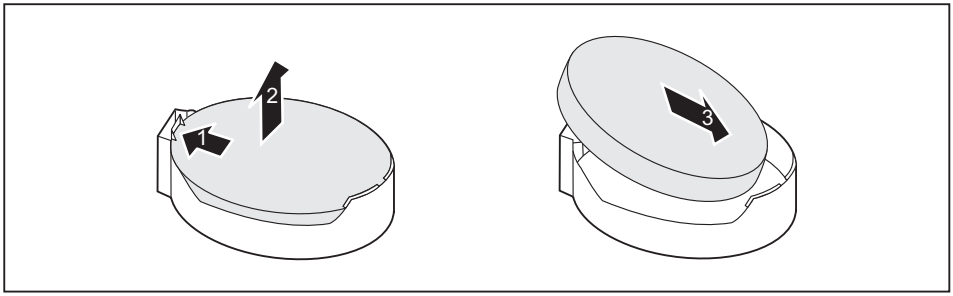
Incorrect replacement of the lithium battery may lead to a risk of explosion!

The lithium battery may be replaced only with an identical battery or with a type recommended by the manufacturer.

Do not dispose of lithium batteries with household waste. They must be disposed of in accordance with local regulations concerning special waste.

The lithium battery holder exists in different designs that function in the same way.





- ► Press the catch in the direction of the arrow (1).
- ↳ The battery jumps out of the holder slightly.
- ► Remove the battery (2).
- ► Push the new lithium battery of the identical type into the holder (3) and press it down until it engages.

Technical data

Electrical data	
Safety standards complied with:	IEC 60950-1, EN 60950-1, UL 60950 CSA 22.2 No.60950-1
Protection class:	I
Rated voltage range	100 V – 240 V
Rated frequency	50 Hz – 60 Hz
Max. rated current (Casing with monitor socket):	100 V – 127 V / 6.5 A 200 V – 240 V / 3.5 A
Max. rated current Monitor socket (output):	100 V – 127 V / 3.0 A 200 V – 240 V / 1.5 A
Dimensions	
Width/depth/height:	203 mm/387 mm/390 mm
Weight	
in basic configuration:	approx. 11 kg
Ambient conditions	
Environment class 3K2 Environment class 2K2	DIN IEC 721 part 3-3 DIN IEC 721 part 3-2
Temperature	
Operation (3K2)	15 °C .... 35 °C
Transportation (2K2)	–25 °C .... 60 °C
The formation of condensation is not permitted while the device is in operation ! Clearance required to ensure adequate ventilation:	
without air vents with air vents	min. 10 mm min. 200 mm

The data sheets of these devices contain further technical data. The data sheets can be found on our website "http://ts.fujitsu.com".

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